

WHAT IS CLAIMED IS:

1. A method for determining a current delay offset of a fractionally
2 spaced equalizer, said method comprising steps of:
determining an arrival time from a first and a second Rake receiver
4 finger;
determining a difference between said arrival time and a previous delay
6 offset of said fractionally spaced equalizer;
modifying said current delay offset of said fractionally spaced equalizer
8 by an incremental delay offset when said difference is greater than or equal to
one tap spacing.
2. The method of claim 1, wherein said arrival time is statistically
2 derived.
3. The method of claim 2 wherein said statistically derived arrival
2 time is a weighted mean arrival time.
4. The method of claim 3 further comprising steps of:
2 collecting a first arrival time and a first signal energy from said first Rake
receiver finger;

- 4 collecting a second arrival time and a second signal energy from said
second Rake receiver finger; and
- 6 weighting said first arrival time by said first signal energy to determine a
first weighted arrival time;
- 8 weighting said second arrival time by said second signal energy to
determine a second weighted arrival time;
- 10 utilizing said first arrival time and said second arrival time to determine
said weighted mean arrival time.

5. The method of claim 2 wherein said statistically derived arrival
2 time is a median arrival time.

6. The method of claim 2 wherein said statistically derived arrival
2 time is a simple mean arrival time.

7. The method of claim 4 further comprising a step of utilizing a total
2 energy of said first and second signal energies to normalize said first signal
energy.

8. The method of claim 1 wherein said first Rake receiver finger
2 receives data from a sample buffer.

9. The method of claim 1 wherein said second Rake receiver finger
2 receives data from a sample buffer.

10. The method of claim 1 wherein said incremental delay offset is
2 determined by selecting a highest integer less than an absolute value of said
difference.

11. The method of claim 1 further comprising a step of shifting a
2 plurality of filter coefficients by a multiple of said tap spacing.

12. The method of claim 1 wherein said modifying step occurs when
2 an absolute value of said difference is greater than one.

13. The method of claim 1 wherein said modifying step occurs during
2 a pilot burst.

14. The method of claim 1 wherein said fractionally spaced equalizer
2 is a finite impulse response filter.

15. The method of claim 1 wherein input to said fractionally spaced
2 equalizer is delayed by said current delay offset.

16. A receiver in a wireless communications system, said receiver
2 comprising:

a sample buffer coupled to a first and a second Rake receiver finger; and
4 a weighted mean time tracking module coupled to said first and said
second Rake receiver finger and said sample buffer, and wherein said weighted

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6 mean time tracking module is configured to set a current delay offset of said
fractionally spaced equalizer in said receiver to a weighted mean arrival time.

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17. The receiver of claim 16 wherein said weighted mean time
2 tracking module is further configured to collect a first arrival time and a first
signal energy from said first Rake receiver finger and to collect a second arrival
4 time and a second signal energy from said second Rake receiver finger.

18. The receiver of claim 17 wherein said weighted mean time
2 tracking module is further configured to weight said first arrival time by said first
signal energy to determine a first weighted arrival time and to weight said
4 second arrival time by said second signal energy to determine a second
weighted arrival time.

19. The receiver of claim 18 wherein said weighted mean time
2 tracking module is further configured to determine said weighted mean arrival
time from said first and said second weighted arrival time.

20. The receiver of claim 17 wherein said weighted mean time
2 tracking module determines a total energy of said first and second signal
energies to normalize said first signal energy.

21. The receiver of claim 17 wherein said weighted mean time
2 tracking module determines a total energy of said first and second signal
energies to normalize said second signal energy.

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22. The receiver of claim 16 wherein said weighted mean time
2 tracking module increments said current delay offset by an incremental delay
offset when said weighted mean arrival time differs from a previous delay offset
4 by a value greater than or equal to one tap spacing.

23. The receiver of claim 16 wherein said weighted mean time
2 tracking module decrements said current delay offset by an incremental delay
offset when said weighted mean arrival time differs from a previous delay offset
4 by a value less than or equal to negative one tap spacing.

24. The receiver of claim 16 wherein a plurality of filter coefficients of
2 said fractionally spaced equalizer are shifted during a pilot burst.

25. The receiver of claim 16 wherein said fractionally spaced equalizer
2 is a finite impulse response filter.

26. A digital signal processing apparatus to determine a current delay
2 offset of a fractionally spaced equalizer, said processing apparatus comprising:
a storage;
4 a digital signal processor coupled to said storage and used to interpret
digital signals by:
6 determining a statistically derived arrival time from a first and a
second Rake receiver finger;

8 determining a difference between said statistically derived arrival
time and a previous delay offset of said fractionally spaced equalizer;

10 and

modifying said current delay offset of said fractionally spaced
12 equalizer by an incremental delay offset when said difference is greater
than or equal to one tap spacing.

27. A receiver in a wireless communications system, said receiver
2 comprising:

a buffering means coupled to a first and a second Rake receiver means;

4 a weighted mean time tracking means coupled to said first and said
second Rake receiver means and said buffer means, wherein said weighted
6 mean time tracking means is configured to set a current delay offset of a
fractionally spaced equalizer means in said receiver to a weighted mean arrival
8 time.